IOWA DEPARTMENT OF NATURAL RESOURCES

Sport Fish Restoration Research Findings

An Evaluation of Winter Habitats Used By, Bluegill, Black Crappie, and White Crappie in Pools 11-14 of the Upper Mississippi River

Project Duration: 1998-2010
Locations: Upper Mississippi River
Study Number: 7021

Mississippi River Fisheries Research Team:
Michael J. Steuck, Fisheries Biologist
Dennis Weiss, Fisheries Technician 2
Caleb Schnitzler, Fisheries Technician 2

For more information, please contact the Bellevue Fish Research Station at (563) 872-4976.

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Overwintering habitat is critical to maintaining populations of bluegill, black crappie, and white crappie on the Upper Mississippi River. Losses and changes in physical habitats and water quality have caused concern relative to the status of Bluegill and crappie. Specifically, sedimentation has reduced the amount and quality of backwater areas that serve as overwintering sites. Determining the physical and chemical nature of winter habitat is critical for the preservation and enhancement of panfish populations on the Upper Mississippi River.

Goals

- To determine the winter habitat preferences of adult Bluegill, Black Crappie, and White Crappie in several pools of the Upper Mississippi River.
- To determine the physical and chemical nature of winter habitat selected by adult Bluegill, Black Crappie, and White Crappie.
- Develop recommendations designed to maintain and improve winter habitat for adult Bluegill, Black Crappie, and White Crappie of the Upper Mississippi River.

Results

- A total of 368 fish were captured and fitted with radio transmitters from 1998-2008.
- Externally attached radio transmitters resulted in greater post-tagging survival compared to internally implanted tags.
- Tracking in Mud Lake (Pool 11) identified reduced fish use of the project area due to excess flows at inlet structure. Subsequently the inlet structure was necked down and telemetry showed an increase in lake area utilized as overwintering habitat.

Conclusions

- Fish as large as possible should be radio-tagged to accommodate transmitters with the longest battery life.
- Radio tagged Bluegill, Black Crappie, White Crappie, and Largemouth Bass moved from main channel and side channel habitat to backwater habitat as ice cover increased and water temperature dropped below 50°F. Studies aimed at evaluating winter habitat of these fish should occur at temperatures ≤50°F.
- Winter habitat can be defined as backwater areas as small as ½ acre with water temperatures 2-5°F above freezing and little or no water velocity (mean 0.01 feet/second).
- Overwintering habitat restoration projects should be spaced no more than 3 miles apart since on average, Bluegill, Black Crappie, and White Crappie moved 1.23, 1.5, and 0.90 river miles between summer and winter habitats and most panfish (91.7%) moved less than 3.5 river miles, 75% moved 1.4 river miles or less and 50% moved 0.8 river miles or less between summer and winter habitat.